

A NOVELTY OR THE NORM:

Artificial Intelligence in government social service agencies



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“It’s perhaps the most important question of the day: how do we get systems to talk with each other?”

David Gruen, MD
Chief medical officer, Merative

Technology has the power to fundamentally change how we live and work for the better. And nowhere have more promises been made about revolutionary technology than Artificial Intelligence (AI). Rather than dream about what AI could offer, let’s examine where AI is already at work in the government sector, specifically, where AI supports the delivery of social programs and benefits.

AI has the potential to help move the US health and social services’ siloed systems toward integrated systems of health that focus on prevention instead of reaction. The application of machine learning to big data can identify patterns for improving health care and social services delivery, and decision-support tools can enable evidence-based care. In addition, AI has become a foundational element in many wearable technologies that support health maintenance or disease management¹.

AI for governmental health and human service agencies

What isn't novel is AI in the US federal government. A 2020 report found: "The [US] government's AI toolkit is diverse and spans the federal administrative state. Nearly half of the federal agencies studied (45%) have experimented with AI and related machine learning (ML) tools. Moreover, AI tools are already improving agency operations across the full range of governance tasks²⁹".

The US Department of Health and Human Services (DHHS) maintains a list of active AI use cases in their agencies, totaling 50 as of July 2022³. Examples include:

- **The Centers for Medicaid and Medicare (CMS)** uses machine learning and algorithms to help detect, prevent, and fight Medicaid and Medicare fraud and abuse more quickly and effectively.
- **The National Institutes of Health (NIH)** grant referral process relies on AI to analyze grant application inputs—including the title, abstract, specific aims and public health relevance. The system automatically sends the grant application to a matching NIH Program Officer with similar science background. This process operates at a 92% accuracy rate.
- **The Health Resources and Services Administration (HRSA)** trained a chatbot to identify the most common, low complexity grantee questions, and then developed responses to questions using regular natural conversational expressions. Ninety percent of incoming chatbot inquiries are resolved without any involvement of the customer support.
- **CMS** created a Reasonable Accommodation Robotic Process Automation (RPA) Bot. The Bot pulls human resources data related to staffing changes—promotions, reassignments, change in supervisor—and generates any required actions by the Reasonable Accommodation staff. This ensures that reasonable accommodations for disabilities follow employees.



Social services benefit from AI

In social services specifically, we know that AI can assess eligibility and needs, make enrollment decisions, provide benefits, and monitor and manage benefit delivery⁴.

It also has the power to reduce the administrative burden on social workers and caseworkers. In one study, caseworkers estimated that paperwork demands more than 70% of their time⁵. By streamlining processes and paperwork, they gain back time to focus on complex cases and connect with people.

According to an experienced child welfare professional, "The more technology we can create that allows workers to stay in the field, meet with the families and still meet federal requirements, the better. This use of technology is critical."

Aspiranet knows this well. Aspiranet is a California-based organization that helps youth transition from foster home care to living on their own. They wanted to move from a paper-based to a digital care management system, and also connect data systems to better inform care plans.

They adopted Merative's Integrated Care solution which uses natural language processing to mine free text in care managers' notes. It extracts and lifts key concepts that helps care managers quickly see information that's most relevant to their next client interaction. Staff report more efficient and effective electronic data entry, less overtime needed to catch up on notes, and more effective notes retrieval. Aspiranet staff also say it improves the quality of their relationships with youth.

A Deloitte analysis of human services agencies in a large Midwestern state found that automation could yield up to 34% time savings. This amounts to 3 million additional hours available, yielding potential annual savings of USD 73 million. At the low end of the investment spectrum, automation could still save 305,000 hours annually, with a potential savings of USD 7 million⁶.



“All that data is meaningful,” says Irene Dankwa-Mullan, MD, MPH, Chief Health Equity Officer and Deputy Chief Health Officer at Merative.

“But it’s too complex to be handled by our traditional statistical analysis or software systems⁸.” That’s where AI comes in.

Developing big data

Data plays a critical role in driving the value of AI in health and social services. How well AI algorithms work is contingent on the quality of data available – and the completeness of it. Without large, high-quality data sets, it can be difficult to build useful AIs⁷.

The health and social services sectors generate large amounts of data, which is driven by accumulated biomedical research, public health data, electronic health records, hospital data, beneficiary databases and wearable gear.

In **Sonoma County, California**, for example, health providers use AI systems with natural language processing to analyze patient conversations with at-risk populations.

Individuals with mental health and/or substance abuse issues are one such population. Because the slang for drugs and self-harming behavior changes constantly, AI aids health providers by identifying and cross-referencing these terms in different partner databases to ensure that treatment opportunities are captured and the best recommendations are made⁹.

Expanding data sources through partnerships

Combining multiple data sources can support enhanced decision-making with AI methods that thrive on a variety of information⁴. Forging partnerships with other government agencies, community health organizations and academic institutions can broaden our understanding of how social determinants of health (e.g., economic factors, region of care, mental health, homelessness) directly impact a person's health.

To address a growing unhoused population with complex needs, **Sonoma County** created a multi-disciplinary initiative, ACCESS Sonoma. This safety net collaborative includes County Health Services, Human Services, Community Development Commission (housing), Probation, District Attorney, Sheriff's Office, Courts, Child Support Services and Public Defender¹⁰. Together, these partners connected 6,500 residents to needed social services and successfully housed 72%.

"There has to be collaboration around the client. It's not just about sharing data, but sharing it in a consistent way. That's why we use Merative's SaaS platform," says Carolyn Staats, Director of Innovation, Information Systems Department for Sonoma County, California. "Everything that we and the other counties put in there can be shared."

Trained chatbots, also known as virtual assistants, are a common way AI shows up. In the wake of COVID-19, for example, **Clark County, Nevada** – home to tourist destination Las Vegas – experienced a rapid economic downturn. At one point, nearly 250,000 residents faced eviction from their homes due to unemployment.

Clark County built and deployed a chatbot to pre-screen applicants for rental assistance. By asking a few screening questions, the chatbot determined if the applicant was likely to be eligible for the financial assistance benefit. Applicants who were likely to be eligible received a link to the application and invited to apply. In just one month, the chatbot managed 122,000 inquiries that previously had to be handled individually by caseworkers. The automation meant that caseworkers could instead focus their time on people who needed assistance the most.

Combining complementary data sets

We know that family history can predict diabetes, for example, but so can economic, lifestyle and regional factors. Synthesizing social and medical data and processing them through AI algorithms allows care providers to view their patients through a broader, whole-person lens. This can lead to earlier detection and better treatments.

A study used Swedish population register data and applied different machine learning models to predict substance use disorders (SUD) in youth diagnosed with attention deficient hyperactivity disorder (ADHD). Researchers used medical history of psychiatric and somatic illnesses for the index children and their immediate family members; available perinatal records; and socioeconomic, educational, and geographic data. It worked!

A machine learning model was able to predict future SUD diagnoses many years prior to their actual ages at first SUD diagnosis. This study was the first to apply machine learning algorithms to predict a serious and public health-relevant outcome in the context of ADHD¹².

Further, researchers found that only 10 features were needed for obtaining significant predictions. They included criminal records, prior diagnoses of SUD, ADHD and anxiety, ADHD stimulant treatment, and family social economic status¹². Notice that the major data points needed pulled from what are typically siloed data sets in the US – medical, behavioral health, criminal, geography and socioeconomic factors.

Australia's Department of Human Services (DHS) uses cognitive technologies to help reduce staff workload. The department deployed an internal virtual assistant, Roxy, to answer queries from case-processing officers about departmental rules and regulations. Roxy uses machine learning and natural language processing to understand human language and respond. Roxy answers 78% of questions, freeing experts to only get involved in complex queries¹¹.





Clearing the hurdles to AI adoption

There are obstacles to AI adoption in government health and human services, though. Some are necessary, such as HIPAA regulations, and some of them are human, like mistrust of technology and racial bias. When developing AI-based solutions, anticipating and addressing potential ethical, transparency and health disparity concerns is imperative.

"AI has a broad concept of interoperability. How do we trust the data? How do we get unbiased data? How do we pull together the data that we have so that we really get a comprehensive picture?" asks Gruen. "We believe that that's going to be a huge hurdle to overcome when we convince people that this is cost-saving, data-enhancing, and outcome-improving."

We advocate for evaluating AI in real-world settings and proactively working to reduce the risk that AI could cause unintentional harm or increase health disparities¹.

What's next for AI in social program management?

As noted in *Fortune*, artificial intelligence could become the great equalizer in health and social care, bringing better treatments to all patient populations including traditionally underserved communities⁹. At the same time, AI can help providers and caseworkers spend more time with their clients by automating administrative tasks and orchestrating data synthesis in real time.

Beyond bringing people together, the future success of AI lies in bringing *data* together. Today's health and social data tends to exist in silos. But as the ACCESS Sonoma project and Swedish ADHD and SUD study demonstrate, securely braiding social and health data together allows AI technology to shine.

And by feeding the right data into AI algorithms, health and government agencies can improve population health, provide better patient experiences, focus on preventive care, reduce costs and, importantly, ensure that caregivers aren't overburdened.

"High tech is only part of the solution. Our AI and machine learning technologies need to function in the service of humanity – and not the other way around," Dankwa-Mullan adds.

Using AI in health and human service agencies is a win for everyone. AI-led business improvements increase speed, enhance quality, and reduce costs all at the same time⁶. For human services workers, AI means a future where their time is spent on high-value tasks. Thanks to automation, machine learning, natural language processing, bots, and virtual agents, public sector agencies can enhance their effectiveness and extend their capabilities to serve communities.

AI in social program management may feel new, but it's working. Let's take the opportunity and make it the norm.

Learn more about Merative's technology for improving the delivery of government social programs at merative.com/social-program-management.

About Merative

Merative provides data, analytics and software for healthcare and government social services. With focused innovation and deep expertise, Merative works with providers, employers, health plans, governments and life sciences companies to drive real progress. Merative helps clients orient information and insights around the people they serve to improve decision making and performance. Merative, formerly IBM Watson Health, became a new standalone company as part of Francisco Partners in 2022.

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